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## **AGRICULTURAL DEVELOPMENT AND INCLUSIVE GROWTH IN INDIA: A CASE STUDY OF GUJARAT**

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### **ABSTRACT**

Inclusive growth approach came into being since the launching of the 11<sup>th</sup> five year plan and is going to stay as a critical aspect determining the sustainability of future agricultural growth in India. Agricultural development is an important component of inclusive growth approach. The broad objective of this paper is to link agriculture development and inclusive growth through farm sector growth driven rural transformation. It has found that agricultural sector growth has increased at a higher rate in Gujarat during 2001-02 to 2010-11 than the India. The growth has been sown higher production of cotton and wheat. It has also influenced some exogenous factors i.e. increased gross cropped and net irrigated area, increase in fertilizer consumption and more use of modern agricultural implements etc. The overall analysis on the growth performance of agriculture and allied activities of Gujarat and India, it seems that Gujarat has facilitated inclusive development in agriculture through the path of livestock and horticulture sector in the view of increasing farm income and farm sector growth.

**Keywords:** *Agriculture, Economic Growth, Inclusive Growth, Farm Sector, Non-Farm Sector*

### **INTRODUCTION**

In India, the Inclusive growth approach got currency ever since the launching of the 11<sup>th</sup> five year plan and it is quite likely that the approach is going to stay as a critical strategy of development driving the future growth and sustainability of agriculture in India. While the approach paper of the 11<sup>th</sup> five year plan (2007-08 to 2011-12) prepared by the Planning Commission had aimed at achieving faster and more inclusive growth, the 12<sup>th</sup> plan (2012-13 to 2017-18) approach paper aims at achieving faster, sustainable and more inclusive growth.

Agricultural development is an important component of inclusive growth approach. According to the Socio-Economy Review of 2011-12 of Gujarat, the gross state domestic product (GSDP) of factor cost at constant prices in 2010-11 has been estimated at Rs. 3652950 million which registered a growth of 10.5 per cent during the year. On the contrary, in India the GDP of factor cost has been estimated at Rs. 48, 85, 9540 million at constant prices in 2010-11, registering a growth of 8.4 per cent during the year. The growth of agriculture and allied sectors is still a critical factor in the overall growth performance of the Gujarat economy, as agriculture sector still continue to be the mainstay of almost half of the rural population. During the period 2004-05 to 2010-11, the growth of GSDP for agriculture sector including animal husbandry has averaged at 10.9 per cent (Socio Economic Survey of Gujarat 2011). This performance of the agricultural sector in Gujarat has been highlighted as a miracle driven by several innovative agricultural development programmes and interventions launched by the state over the past one decade (Gulati *et al.*,; Shah *et al.*, 2009).

In this backdrop, this paper examines the issues and aspects of agriculture development and its implications on inclusive growth the broader context of India with special focus on Gujarat agriculture. This paper assumes significance in the context of the ‘miracle agricultural growth performance’ reported in Gujarat over the past decade one and a half decades. The broad objective of this paper is to establish a close link between agriculture development and Inclusive Growth. The specific objectives are:-

1. To examine the GDP growth performance of Gujarat and India across industry groups.
2. To analysis the sources of agricultural growth performance of Gujarat since 2000.
3. To discuss the recent policy initiatives of the government for the agriculture growth and the rural development in the perception of inclusive growth.

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The first section of this paper will examine the economic growth performance across various sectors in India and Gujarat from 1997-98 to 2010-11. The section two analyses the sources of agricultural growth performance in Gujarat since 2000. Section three discusses the recent policy initiatives of the government aimed at the growth of agriculture and rural development in the broader perspective of inclusive growth. Section four concludes the paper highlighting the major outcomes of the agricultural development programmes and the policy imperatives emerging from the analysis.

### **Data Sources and Methodology**

The data used for analysis in this paper has been drawn from the relevant official reports published by the Government of Gujarat and the available literature on the performance of the state's agriculture sector. For examining the performance of growth in terms of changes in sectoral composition of the gross domestic product (GDP/ GSDP) at the national and state levels, the paper uses the data from the government sources for the period 2001-02, 2007-08 and 2011-12. The paper has also used the time series data for the last 14 years i.e., for the period 1997-98 to 2010-11 at constant 2004-05 prices through the splicing techniques. Other data sources are the Directorate of Economic and Statistics of Gujarat and India, Ministry of Agriculture of Gujarat and India etc, planning commission report on 11<sup>th</sup> and 12<sup>th</sup> five year plan etc. The paper uses descriptive statistical methods for the analysis of data, such as Annual Average Growth Rate, percentage and splicing method for convert data into a single base year.

### **Relationship between Agriculture and Inclusive Growth**

Inclusive growth is an all encompassing concept, which includes aspects, such as agriculture development, employment generation, poverty reduction and reduced regional inequality. Agriculture development may be deemed as the critical aspect of inclusive growth and proves to be a smooth path for achieving social and economic inclusion. The following paragraphs present an overview of some of the existing literature on inclusive growth concept.

Richard (2004) explained that agriculture growth and rural development have significant potential to achieve inclusive growth among the Asian countries. Hasan and Quibria (2004) also argued that rural poverty generally dominates in most countries where agriculture is the main source of livelihood. Thus growth of agriculture sector is the key for poverty reduction and inclusive growth. Agriculture growth will enhance economic growth and reduce rural poor by increasing their productivity and incomes. So, agriculture connects economic growth and the rural poor (OECD 2006).

Sharma *et al.*, (2010) examines that the inclusive growth is essential to develop agriculture on sustainable manner by reducing disguised unemployment in the farm sector in the way of shifting labor to the non-farm sector and increase average size of land holding resulting marginal productivity of labor and land increases. BIRTHAL *et al.*, (2012) examined that diversification of the agriculture through livestock production will accelerate the agriculture growth and it provide livelihood support to the small and marginal land holders. Agriculture growth and rising farmers income is important aspect for inclusive growth in agriculture sector. This can be addressed to reduce supply side constraints in agriculture sector (Dev 2010). Economic growth scenarios of India as well as the major growing states have not been successful in combining growth with equity and making growth inclusive. The trickle-down process of growth has by passed sectors like agriculture where labour is concentrated (Bhalla, 2008). Rao (2009) observed that regional disparity, rising income inequality, inequality of land holdings and high dependency of workforce are important obstacle for inclusive growth in agriculture or equitable development in the all sectors of the economy.

Dixit (2009) explains that agriculture is playing a major role in Gujarat's high growth story during the last decade. The economic growth and its performance depend on the positive correlation between three sectors such as primary, secondary and tertiary. Shah *et al.*, and Gulati *et al.*, (2009) represent that the Gujarat has high and steady growth since 2000 and this growth has driven by endogenous factors and role of government. Shah *et al.*, (2009) observe that the regional growth in agriculture after 2000 was driven by massive expansion in Rabi wheat cultivation and rapid expansion in BT cotton area and yield. Dholakia and Amey (2011) argued that high growth rate of agriculture sector has achieved by structural shifts within the primary sector in the form of significant diversification of cropping pattern from low

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value to high value commercial crops and with rapid increase in allied activities such as dairying, animal husbandry, fishing and horticulture.

### **Economic Growth and Sectoral Contribution of Gujarat vs. India (1997-98 to 2010-11)**

The tables 1 and table 2 show the economic growth performance of Gujarat and India in terms of sectoral growth.

In Period-1, Average Annual Growth Rate (AAGR) of total Gross State Domestic Product (GSDP) of Gujarat was 3.24 per cent in comparison to India which was 5.73 per cent, much better than Gujarat. In Primary sector the AAGR was -2.32 per cent and where India was in 2.65 per cent. The growth rate agriculture including animal husbandry was also in negative, -2.17 per cent while in India the growth was 2.48 per cent which was better than Gujarat's performance. Both secondary and tertiary sectors AAGR were 3.33 per cent and 8.09 per cent in Gujarat and 4.60 per cent and 8.13 per cent in India.

In Period -2, AAGR of total GSDP of Gujarat was 10.99 per cent and 7.61 per cent in the case of India which are higher than the previous period and Gujarat rapidly overcame India in this period in the matter of growth. The AAGR of primary sector of Gujarat was 8.62 per cent where as India lies on just 2.73 per cent. In agriculture the growth was 11.01 per cent in Gujarat and only 2.41 per cent in India. This period witnessed higher growth in agriculture than India. The AAGR of both secondary and tertiary sector also higher than previous period which were 13.05 per cent and 10.86 per cent where as the growth of India were 9.66 per cent and 8.82 per cent.

In Period -3, the AAGR of GSDP was 9.58 per cent and 8.20 per cent in both Gujarat and India. In the case of primary sector the growth was just 3.34 per cent in Gujarat and 3.58 per cent in India. Agriculture growth performance was not good than previous period, it was 4.80 per cent in Gujarat and 3.17 per cent in India. The AAGR of Secondary and tertiary sector are 11.06 per cent and 10.82 per cent in Gujarat and 7.71 per cent and 10.01 per cent in India respectively.

The Period-4 shows the decadal growth performance of various macro-economic indicators of both Gujarat and India. The AAGR of GSDP of Gujarat is 7.11 per cent and AAGR of GDP of India is 6.67 per cent. The growth of primary sector was 3.15 per cent and 2.69 per cent in Gujarat and India respectively. This phase did not perform better in agriculture sector both in Gujarat and India which was 4.41 per cent and 2.44 per cent respectively, though the growth of agriculture in Gujarat was more than growth at the national level. In the case of secondary and tertiary sector, the growth rate was 8.19 per cent and 9.47 per cent in Gujarat and 7.13 per cent and 8.47 per cent in India respectively.

Period-5 reflects the decadal growth performance of different macroeconomic indicators of Gujarat and India. The growth rate of the Gujarat economy was more than 10 per cent where as in the case of India it was 7.64 per cent. This period is a miracle phase of Gujarat economy because all the three sector growths were higher than India's growth average. The growth of primary sector was 8.44 per cent for Gujarat and only 3.35 per cent for India. This period achieved miracle performance in Gujarat agriculture growth as well which was 10.92 per cent in comparison to India which was just 3.10 per cent. Growth in other sectors including secondary and tertiary sector were 11.08 per cent and 10.47 per cent in Gujarat and 8.18 per cent and 9.10 per cent in India respectively.

**Table 1: AAGR of GSDP among Industry Groups of Gujarat at Constant 2004-05 Prices**

<b>Year</b>	<b>Primary</b>	<b>Agriculture</b>	<b>Secondary</b>	<b>Tertiary</b>	<b>Total GSDP</b>
1997-98 to 2001-02 (Period-1)	-2.32	-2.17	3.33	8.09	3.24
2002-03 to 2006-07 (Period-2)	8.62	11.01	13.05	10.86	10.99
2007-08 to 2010-11 (Period-3)	3.34	4.80	11.06	10.82	9.58
1997-98 to 2006-07 (Period-4)	3.15	4.41	8.19	9.47	7.11
2001-02 to 2010-11 (Period-5)	8.44	10.92	11.08	10.47	10.21

*Note: AAGR = Annual Average Growth Rate, GSDP = Gross State Domestic Product*

*Sources: Data Computed from various years Socio-Economic review of Govt. of Gujarat; Department of Economic and Statistics, Gandhinagar.*

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**Table 2: AAGR of GDP among Industry Groups of India at Constant 2004-05 Prices**

Year	Primary	Agriculture	Secondary	Tertiary	Total GDP
1997-98 to 2001-02 (Period-1)	2.65	2.48	4.60	8.13	5.73
2002-03 to 2006-07 (Period-2)	2.73	2.41	9.66	8.82	7.61
2007-08 to 2010-11 (Period-3)	3.58	3.17	7.71	3.58	3.17
1997-98 to 2006-07 (Period-4)	2.69	2.44	7.13	8.47	6.67
2001-02 to 2010-11 (Period-5)	3.35	3.10	8.18	9.10	7.64

*Sources: Data Computed from Economic Survey of 2011-12, Govt. of India.*

***Sources of Agricultural Growth Performance of Gujarat (2001-02 to 2010-11)***

Agriculture is a state subject and its development and achievement is based on the policies and approaches taken by respective state Governments. In Gujarat, the agriculture growth has been rapidly increasing than India as a whole since 2000's. The sources of agriculture growth performance may be explained in terms of exogenous and endogenous variables. The production and productivity of food crops, non-food crops and non-crops are endogenous and exogenous variables like land utilization, land irrigation, other inputs and Government's innovative agricultural policies.

The table 3, 4 and 5 have shown the agricultural performance of Gujarat are determined by the growth rate of production, productivity and area coverage of various crops and non-crops of two time periods from 1991-92 to 2000-01 and 2001-02 to 2010-11. It has also compared the growth rate of production, yield and area of various crop and non-crop sectors between Gujarat and India after 2000.

***Production of Crops and Non Crops of Gujarat and India***

In the year 1991-92 to 2000-01, total food grains production was 2.02 per cent and in 2001-02 to 2010-11 is 17.90 per cent. As compared to India the total food grains production was only 1.34 per cent since 2000. In Gujarat all food crop production such as total cereals, Wheat, total pulses and non-food crop such as total oilseeds, cotton, groundnut and tobacco etc have rapidly increased in the period 2001-02 to 2010-11 than the previous decades 1991-92 to 2000-01.

**Table 3: AAGR of Production of Major crops and non-crops sectors**

Production Variables	1991-92 to 2000-01	2001-02 to 2010-11	2001-02 to 2010-11 (India)
Total Cereals	2.58	18.08	1.20
Total pulses	-1.40	16.56	3.53
Total Food grains	2.02	17.90	1.34
Wheat	2.56	28.02	1.80
Total oilseeds	18.03	33.89	5.03
Cotton	7.18	26.65	23.43
Groundnut	47.99	224.85	0.72
Tobacco	-2.12	18.58	1.59*
Milk	4.51	5.79	4.43
Fruits and Vegetables	5.15	12.53	-
Total Horticulture	5.04	12.85	-

*Sources: Computed from the Data of Directorate of Economic and Statistics and Ministry of Agriculture, Government of Gujarat, Gandhinagar; Agricultural Statistics Report of Ministry of Agriculture, Govt. of India*

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### *Productivity of Crops and Non-Crops of Gujarat and India*

As compared to Gujarat, the performance of India was very less or marginal. In the case of high value agriculture such as milk production increased from 4.51 per cent to 5.79 per cent in the period 1991-92 to 2000-01 and 2001-02 to 2010-11. In case of fruits and vegetable production Gujarat has achieved massive growth from 5.15 per cent in 1991-92 to 2000-01 to 12.53 per cent in 2001-02 to 2010-11 (see table 3). The Productivity Growth of total food grains has increased from 0.08 per cent in 1999-2000 to 5.08 per cent in 2001-10 in Gujarat, where as productivity of food grains growth in India was only 1.07 per cent during the period 2001-10. So it shows that Gujarat performance in food grains production and productivity is higher in 2001-10 than the 1991-2000. Between 1991-92 and 2000-01, the growth rate of productivity of wheat was 0.11 per cent and it has increased to 3.45 per cent between 2001-02 and 2010-11 but India is only 0.63 per cent. The productivity oilseeds is equal both Gujarat and India after 2000's. The cotton was in negative before 2000 in Gujarat but achieved massive growth as 28.60 per cent after 2000's where as the figure is good in India too. The yield of milk has increased to 1.29 per cent during 2001-02 to 2010-11. The productivity of tobacco was negative before 2000's and has increased to 1.71 per cent after 2000 in Gujarat (see table 4).

**Table 4: AAGR of Productivity of Major crops and Non-crops Sectors**

<b>Productivity Variables</b>	<b>1991-92 to 2000-01</b>	<b>2001-02 to 2010-11</b>	<b>2001-02 to 2010-11 (India)</b>
Total Cereals	0.47	4.84	0.005
Total pulses	-2.94	4.98	1.35
Total Food grains	0.08	5.08	1.07
Wheat	0.11	3.45	0.63
Total oilseeds	0.53	2.62	2.69
Cotton	-2.61	28.60	17.41
Groundnut	1.27	3.23	1.25
Tobacco	-0.86	1.71	0.19
Milk*	0.34	1.29	-

\*Milk Yield per animal per day (in Kg.)

Sources: Same as table 3

### *Area Coverage of Crops and Non-Crops of Gujarat*

During the period 1991-92 to 2000-01, the growth rate of area of cultivation of Cereals, pulses, food grains, wheat, oilseeds, tobacco, milk etc were in negative zone and after 2000's the area of crops and non-crops has increased highly.

**Table 5: AAGR of Area of major crops and non-crops sectors**

<b>Area Variables</b>	<b>1991-92 to 2000-01</b>	<b>2001-02 to 2010-11</b>	<b>2001-02 to 2010-11 (India)</b>
Total Cereals	-1.80	3.02	-0.13
Total pulses	-1.58	1.43	1.94
Total Food grains	-1.76	-7.89	0.24
Wheat	-2.98	25.94	1.10
Total oilseeds	-0.01	0.86	1.84
Cotton	4.38	5.09	2.20
Groundnut	4.36	0.31	-0.46
Tobacco	-1.87	3.43	1.14
Milk*	-0.79	1.80	-
Fruits and Vegetables	9.61	10.53	-
Total Horticulture	7.58	10.30	-

\*Total number of livestock for milk production only in milk Population (00'Nos.)

Sources: Same as table 3



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The growth of area has increased more in Wheat crops and milk (No. of livestock). The area growths of fruits, vegetables and total horticulture have increased more than 10 per cent during 2001-02 to 2010-11 (see table 5). The above three tables have shown that the performance of both crop and non-crops have increased rapidly than India and this will increase income of the rural people and massive expansion of area and production of livestock product and horticulture product brings inclusive growth in agriculture.

### **Performance of Some Exogenous Variables of Gujarat Agriculture**

There are several exogenous factors that mattered in the growth of agriculture in Gujarat since 2000. The performance of some important variables such as rainfall pattern, effective land utilization, efficiency in land irrigation, cropping intensity (per cent of Gross cropped area to net sown area), irrigation intensity (per cent of gross irrigated area to net irrigated area), fertilizer consumption, consumption of electricity and use of modern agricultural implements etc are discussed in the following paragraphs.

#### **Land Utilizations and Land Irrigation of Gujarat Agriculture**

The land utilization variables are gross cropped area, net sown area, cropping intensity, food cropped area and non-food cropped area. The variables of land irrigation are net irrigated area, gross irrigated area, irrigation intensity, the percentage of gross irrigated area to gross cropped area and net irrigated area to net sown area. Both the variables of land utilization and irrigation are important to estimate the impact of irrigation and availability of land on the production and productivity of both crops and non-crops of Gujarat agriculture. Table 6 and 7 gives the performance of land utilization and land irrigation area in hectare and also percentage of Gujarat. Both the growth rate of net area sown and gross cropped area are 0.31 per cent and 1.56 per cent in 2001-06 which has increased from -0.49 per cent and -0.77 per cent in the period 1980-2000. The percentage change of the previous year shows that the gross cropped area and net sown area increased in the year 2001-02 and 2003-04. In the same manner gross irrigated area and net irrigated area was 13.37 per cent and 14.38 per cent in the period 1980-2000 and it slightly reduced to 6.91 per cent and 7.95 per cent from 2001-02 to 2006-07. The percentage changes per year of net irrigated and gross irrigated area have seen that from 2001 onwards the change is increasing.

**Table 6: Gross/Net Cropped Area and Irrigated Area of Gujarat (Area in '00 hectares)**

Year	Net Sown Area	Gross Cropped Area	Net Irrigated Area	Gross Irrigated Area
1980-81	95765 (-)	107459 (-)	20026 (-)	23344 (-)
1990-91	92962 (-2.92)	106348 (-1.03)	24376 (21.72)	29105 (24.70)
2000-01	94333 (1.48)	104970 (-1.30)	28060 (15.11)	33421 (14.82)
2001-02	96217 (1.99)	107910 (2.80)	29944 (6.71)	35728 (6.90)
2002-03	94818 (-1.45)	106307 (-1.49)	30461 (1.72)	36370 (1.80)
2003-04	98515 (3.90)	114210 (7.43)	33875 (11.20)	41112 (13.0)
2004-05	97469 (-1.06)	112569 (-1.43)	35276 (4.13)	42795 (4.10)
2005-06	97222 (-0.25)	114947 (2.11)	39074 (10.77)	47642 (11.30)
2006-07	98009 (0.80)	118074 (2.72)	42376 (8.45)	52787 (10.80)
1980-2000	-0.49	-0.77	13.37	14.38
2001-2006	0.31	1.56	6.91	7.95

*Sources: Various years Socio-Economic Review, Govt. of Gujarat*

*Note: Parenthesis is the percentage change in the previous years.*

Cropping intensity and irrigation intensity also increase in the period 2001-02 to 2006-07. The growth of cropping intensity is 1.23 per cent in 2001-02 to 2006-07 in comparison to -0.27 in 1980-81. This increase is due to the increase in Gross cropped area at that period. In Gujarat the percentage of gross irrigated area and net irrigated are increasing every year from the period 1991 to 2006. This is the reason for productivity increase in various crops after the 2000. Generally, it has proved that Gujarat is largest producer of commercial crops such groundnut, cotton etc and this has brought because the percentage of area under non-food crop is increasing than the percentage of food crop (see table 7).

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**Table 7: Gross and Net Irrigated Area of Gujarat (In per cent)**

Year	Cropping Intensity	Irrigation Intensity	GIA/GCA	NIA/NSA	Food cropped Area	Non-food cropped Area
1980-81	112.21	116.56	21.72	20.91	51.06	48.93
1990-91	114.39	119.4	27.37	26.22	49.41	50.58
2000-01	111.27	119.1	31.84	29.75	42.07	57.92
2001-02	112.15	119.31	33.11	31.12	42.07	56.96
2002-03	112.11	119.39	34.21	32.13	43.03	56.67
2003-04	115.93	121.36	36	34.39	44.80	55.19
2004-05	115.49	121.31	38.02	36.19	43.49	56.5
2005-06	118.23	121.92	41.85	40.19	44.26	55.73
2006-07	120.47	124.56	44.71	43.24	45.1	54.89
1980-2000	-0.27	0.72	15.53	14.09	-5.86	6.12
2001-2006	1.23	0.73	5.83	6.49	1.20	-0.60

*Sources: Same as table 6*

*Performance of Other Input Variables in Gujarat Agriculture*

The other inputs which has influence the agriculture growth of Gujarat are the consumption fertilizers, consumption of electricity and modern agricultural gadgets. The technical change in agriculture is possible to use these variables.

**Table 8: Uses of Fertilizer, Electricity and Modern Implements in Agriculture**

Consumption of fertilizers (Annual Growth rate)				
1990-91 to 2000-01		7.39		
2001-02 to 2010-11		10.69		
Consumption of Electricity (Annual Growth rate)				
1990-91 to 2000-01		12.20		
2001-02 to 2010-11		-1.53		
Agricultural Gadget ('00 numbers)				
Year	Tractor	per cent change over the Years	Electric Pump	per cent change over the Years
1977	146	-	794	
1982	281	92.46	1722	116.87
1988	478	70.10	2908	68.87
1992	662	38.49	3356	15.40
1997	1221	84.44	4072	21.33
2003	1476	20.88	4683	15.00

*Sources: Same as table 6*

The tables 8 show that the annual growth rate of consumption of fertilizer (NPK) use in agriculture is rapidly increasing from 7.39 per cent in 1990-91 to 2000-01 to 10.69 per cent in 2001-02 to 2010-11. After 2001-02, fertilizers have been used to great extent in cultivation which has lead to heavy production of crops but damaged the nutrients of soil and environmental problems. Consumption of electricity for agriculture purpose had increased rapidly at the rate of 12.20 per cent between the period 1990-91 to 2000-01 and then it reduced massively to -1.53 per cent. This may be due to the restrictions coming from Jyotigram rural electrification programme. The Modern agriculture implement have also some impact on

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agriculture production. The use of number of tractors are seen to increase from just 662 in 1992 to 1476 in 2003 and in the same manner the electric pump is increasing 1722 in 1982, 3356 in 1992 and 4683 in 2003. So more use of tractors for ploughing and electric pump for ground water irrigation are effectively influenced agricultural production and productivity.

Therefore the agriculture growth of Gujarat have very much been affecting by cropping and irrigation intensity, fertilizer and electricity consumption and uses of modern agricultural implements etc and it makes agriculture miracle.

### ***Agriculture Development and Inclusive Growth Policy Agenda in Indian Planning***

Indian planning model has linked inclusive growth and agriculture development as the two angels of development. The first attention is for achieving higher production and productivity in food and non-food crops and also emphasized on area and production of the allied activities including horticulture and plantation, livestock, fisheries etc. The second attention was linked to employment opportunities and reduces rural poverty. This is possible by increasing farm wages and increasing employment opportunities in the non-farm sector. In this case Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) has provided subsistence employment to the rural landless agriculture labour, manual worker etc and improved economic outcomes resulting reduction in distress migration. The government of India has implemented various policies and programmes to achieve inclusive development in agriculture and reduce rural poverty through rural transformations and farm sector growth.

### ***Programme and Policies for Farm Sector Growth***

There are two major schemes namely National Food Security Mission (NFSM) and Rashtriya Krishi Vikas Yojana (RKVY) which were launched in 2007. The NFSM is a food security and nutritional security scheme and its main aim is to increase production and productivity of Cereals, pulses. The RKVY is a public investment programme on agricultural technologies and modern implements. The objective of this programme is to increase the crop productivity in dry land areas and extending green revolution to the states of eastern India. Policies regarding allied sectors are National Horticulture Mission (NHM), Technology Mission for Integrated Development of horticulture in North Eastern States including Sikkim, Jammu and Kashmir, Himachal Pradesh and Uttarakhand, Insurance facilities for the animal husbandry sector etc. Various credit and insurance schemes has been introduced to reduce the distress condition of farmers. These schemes are Kisan Credit Card (KCC) scheme, Rehabilitation package for distressed farmers, National Agricultural Insurance Scheme (NAIS) etc. Research and extension is also playing important role for creating awareness among farmers. Agricultural Technology Management Agency (ATMA) is the largest extension programme which is running at the district level with active participation of farmers, NGOs, Krishi Vigyan Kendras and Panchayati Raj Institutions etc.

### ***Programme and Policies for Rural Transformation***

Rural transformation is generally denoted as agricultural transformation or structural changes in the economy. The meaning of all the term is same; shifting the dependency or absorption of the people on farm sector to the non-farm sector. In both 11<sup>th</sup> and 12<sup>th</sup> five year plan, the Government has prompted various schemes in rural area for the rural development and uplift rural socio-economic groups. Some of the schemes are generally centrally sponsored schemes which are implemented by the state government and they are relating to poverty reduction, employment generation, provision of improved health services and access to basic infrastructure (11<sup>th</sup> and 12<sup>th</sup> 5 years Plan Approach Paper). There are various flagship programmes operating in rural areas, viz., Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA), National Rural Livelihood Mission (NRLM), India Awas Yojana (IAY), National Rural Drinking Water Programme (NRDWP), Integrated Watershed Development Programme (IWDP), Pradhan Mantri Grameen Sadak Yojana (PMGSY), Sanitation and Drinking Water Facilities, health facilities etc (12<sup>th</sup> 5 year plan report).

The MGNREGA is the world's largest universal wage employment guarantee programme. The objectives of this job guarantee programme are empowering rural women, reducing rural and urban migration. The total plan expenditure of this scheme of 11<sup>th</sup> five year plan was 156301 corers and grand total is 691976



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corers (11<sup>th</sup> 5 year plan report). In Gujarat about 38.88 lakh job cards have been issued and 188.71 lakhs man days of employment have been generated up to November 2011 (Socio-Economic Review 2011). Up to September 2012-13, 3771029 job cards has issued, 515428 employments provided and total person days generated are 13680365 lakhs (Ministry of Rural Development, Gujarat).

### **Major Policy Initiatives for the Agricultural Development of Gujarat**

Agriculture development should be viewed as a means to larger goals of employment led economic growth, poverty alleviation and self reliance for the proportion of people whose livelihoods depend on it and this brings inclusive growth in agriculture development. To achieve such a goal, it requires technical change in agriculture policy strategy. Technical change in agriculture policy refers to technology-led-agriculture growth such as research and extension, integrated farming system; means seed-cum-resources-centered technology, improved farm input pricing system, irrigation and electricity facilities and expansion of credit co-operative origination etc (Desai *et al.*, 1997; Desai *et al.*, 2011). Despite the technical change of agriculture, there is a need for changing policy for diversification of crop sector to non-crop sector such as strategy for the development of livestock for milk production, expansion of horticulture and plantation crops etc. These are basically high value production and it requires effective policy for its marketing and processing.

In this above background, it can be easily understood that major effective policy initiatives are required for the development of agriculture. Gujarat has proved to be successful in implementing some of these policies and make agriculture growth miracle after 2000. The major policy and programmes in agricultural development of Gujarat are Krishi Mahostav campaign for research and extension support, Soil health card faculties for soil conservation, Jyotigram Yojana to provide 24/7 electricity, Sardar Sarvor Project for the construction of major and medium canal irrigation, management of ground water irrigation under Sardar Patel Sahakari Jal Sanchaya Yojana etc. Other Policies include programme for horticulture development through Gujarat Horticulture mission, improved market access through Agricultural produce marketing committee etc.

### **Irrigation Development Programme**

Irrigation infrastructure is the most important factor in increasing agriculture production. The Government of Gujarat has established water resources development department which is estimating the irrigation potential and utilization of surface and ground water sources. The sources of irrigation from Surface water are major & medium irrigation canals, under Sujalam Suphalam Yojana, Minor irrigation schemes and indirect benefits through percolation tanks, check dams etc under the Sardar Sarovar project Yojana. The sources of ground water are government tube wells, tanks and other sources including khet talavadi, Boribandh and Check dam etc. Surface water irrigation potential is 3.1 million hectares and maximum utilization is 2.3 million hectares; the ground water irrigation potential and maximum utilization are 0.087 million hectares and 0.12 million hectare respectively till 2011 (Socio-Economic Review 2011).

### **Rural Electrification Programme**

Gujarat's agriculture growth miracle has been driven by improved rural power supply under the Jyotigram Scheme. Before this scheme, the mechanization was in bankrupt due to uncontrolled power subsidies to the farmers. To control power subsidies and overcome the debt problem of Gujarat Electricity Board, the Government started initiatives including reduced hours of three phase power connection used by the tube-well owners, providing 24 hours single or double phase power supply for domestic users and provide only single phase connection to the farmer who are using heavy motor-pumps. This decision of Gujarat Electricity Board had turned agriculture and farmer as the main loser customers.

In 2003, the Government of Gujarat implemented the Jyotigram Scheme or known as 'Lighted Village Scheme' through the cooperation of International Water Management institute (IWMI) and its main aim was to provide 24\*7 three phase full power supply. But the implementation of this goal was depended on effective rationing system and imposed on those who are using illegal power consumption. Now this scheme is providing three phases full voltage power supply for agriculture and farmers among 18000 odd villages across Gujarat at the consistent time and scheduled (Gulati *et al.*, 2009).

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### ***Krushhi Mahostav Campaign Programme***

It is a flagship programme which was started in 2005 in Gujarat. Krushi Mahostav is a programme of creating awareness among farmers through providing information on farming. The main objective is expansion of research, extension and technical support to the farmers and is called lab to land programme that gives knowledge to the farmers. In this programme large number of agriculture officers, researchers and scientists are engaged and they visit every village in the districts of Gujarat with 'Krushhi Rath'. It provides information on soil conservation through soil health card scheme, Water conservation through community based irrigation which is called as water harvesting, Organic farming etc (Socio-economic review of Gujarat and Department of Agriculture).

### ***National Horticulture Mission***

Gujarat is occupying 4<sup>th</sup>, 6<sup>th</sup> and 3<sup>rd</sup> places in India in production of fruits, Vegetables and spices respectively. In other words horticulture crops are high value crops and demand of these crops is now increasing in the world market. This type of crop plantation will bring inclusive agriculture development. So the Government of Gujarat has implemented National Horticulture Mission from the year 2005-06 with a view to double the horticulture production and income of the rural poor (Socio-Economic Review of Gujarat). Various programmes by the state Government are going on to boost the horticulture. The programme for horticulture development are Gujarat Horticulture Mission, Women Empowerment, upliftment of poor farmers, Input Subsidy for Horticulture, Establishment and strengthening nursery, Extension Activity, Exhibition and Competition of Horticulture crops and Financial Assistance etc (Report on horticulture in Gujarat, 2009). These programmes help to reduce rural poverty by increasing and also stabilize farmer's income and bring inclusive agriculture development in Gujarat.

### ***Improved Agricultural Marketing***

India agricultural marketing is being promoted through Agricultural Price Monitoring Committee (APMC Act). Gujarat is one of the leading states that have implemented this APMC Act since 2003 (Economic survey of India, 2010). There are different stages of reforms have been taking place in the APMC Act through Direct marketing, Contract farming and markets in private or cooperative sectors since 2007 in Gujarat (Gulati *et al.*, 2009). These reforms are helping farmers to directly sell their produce to wholesalers and exporters with a good profit margin and the government of Gujarat has also encouraged policies to promote sale of diversified high value crops (Shah *et al.*, 2009).

## **Conclusion**

This study promises to examine the agricultural growth performance of Gujarat and India. The growth of agriculture was higher than 10 per cent for Gujarat during the year 2001-02 to 2010-11 while economic growth was also high at 10.21 per cent. But in the previous decade the agriculture growth was just 4 per cent while economic growth was 7 per cent. So, it proved that agricultural growth is positively related to economic growth. The study found that when agriculture contribution of Gujarat GDP is increased, the economic growth is also increased. It was seen that both the periods 2002-03 to 2006-07 and 2001-02 to 2010-11 are superior in terms of primary and agriculture sector growth in Gujarat which was always better than the India.

The growth performance of agriculture of Gujarat has been influenced by the growth of total cereals, total pulses, total food grains, wheat, total oilseeds, groundnut and tobacco. The performances of crop growth were more than 10 times than that of Indian agriculture growth of all the crops. The production and area of diversification crops like livestock, fruits and vegetables, total horticulture were also higher in Gujarat than India during the period 2001-02 to 2010-11. The sources of growth achievement of crops and non-crops of Gujarat have been influenced by massive growth of net irrigated area, gross irrigated area, and increased gross irrigated area to gross cropped area, net irrigated area to net sown area, percentage of area on food crops and non-food crops etc. The agriculture development of Gujarat has increased after 2000's due to effective agricultural policy relating to irrigation, electrification, research, extension, subsidies and fertilizer consumption etc.

There are different policy initiatives that have made both Gujarat and India to link agriculture development with inclusive growth. These policies were National food security mission, Rashtriya Krishi

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Vikas Yojana, National Horticulture programme, Research and extension programme etc. The major policies of rural India are wage employment programme (MNREGS), drinking water and sanitation campaigning, house facilities for the rural poor etc which have initiated both in Gujarat and India as a whole. The study found that the performance of the recent policy initiatives could not be evaluated in a short period of time and its effective evaluation is based on good governance for the inclusive development.

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